What is claimed is:

1. An optical gas sensor for determining a gas component in air, comprising a radiation source;

a detector; and

a sensitive layer in a beam path of the radiation source, the sensitive layer containing at least one oligomer or polymer having at least one side chain, the side chain having at least one basic or acidic functional group.

2. The optical sensor as recited in claim 1, wherein the sensitive layer is positioned between the radiation source and the detector.

3. The optical gas sensor as recited in claim 1, wherein the side chain contains at least one of a quaternary ammonium function and a phosphonium function, as the basic functional group.

4. The optical gas sensor as recited in claim 1, wherein the side chain contains at least one of a carboxylic function, phosphonic function, and a sulfonic acid function as the acidic functional group.

5. The optical gas sensor as recited in claim 1, wherein the side chain has the general formula $[-R_1-NR_2R_3R_4]^+A^-$, where $-R_1-$ is one of a bridging molecular fragment or a carbon-nitrogen bond, by which the side chain is attached to the main chain of the oligomer or polymer, R_2, R_3 and R_4 denoting other groups that are functionalized or functionalizable, and A^- is an anion.

6. The optical gas sensor as recited in claim 1, wherein the side chain has the general formula $[(-R_1-)(-R_2-)NR_3R_4]^+A^-$, where $-R_1-$ and $-R_2-$ are bridging molecular fragments or carbon-

nitrogen bonds by which the side chain is attached to the main chain of the oligomer or polymer, R_3 and R_4 denoting other groups that are functionalized or functionalizable, and A^- is an anion.

7. The optical gas sensor as recited in Claim 4, wherein the bridging molecular fragment R_1 has the general formula $[-R_{10}-[NR_{20}R_{30}-R_{40}-]_x-]^{(x)+}$ $(x)/n$ A^{n-}, where $-R_{10}-$ is a bridging molecular fragment or a carbon-nitrogen bond by which the side chain is attached to the main chain of the oligomer or polymer, R_{20}, R_{30} and R_{40} denoting groups that are functionalized or functionalizable, $-R_{40}-$ being a bridging group, A^{n-} being an anion and x being an integer greater than 0.

8. The optical gas sensor as recited in claim 1, wherein the side chain has the general formula $-R_{104}-[-CR_{400}SO_3H-R_{500}-]_x[-CR_{600}\ R_{700}SO_3H]$, where $-R_{104}-$ is a bridging molecular fragment or a carbon-carbon bond by which the side chain is attached to the main chain of the oligomer or polymer, R_{400}, R_{500}, R_{600} and R_{700} denoting other groups that are functionalized or functionalizable, or a C-C double bond to one of the other R_x groups, R_{400} being a bridging group, A^- being an anion and x being an integer greater than or equal to 0.

9. The optical gas sensor as recited in claim 1, wherein the side chain has at least one acidic functional group and at least one basic functional group.

10. The optical gas sensor as recited in claim 1, wherein the sensitive layer contains polydimethylsiloxane.

11. The optical gas sensor as recited in claim 1, wherein the sensitive layer has a layer thickness of 20 μm to 100 μm.

12. The optical gas sensor as recited in claim 1, wherein the sensitive layer is on a substrate which is the detector.

13. A method of detecting at least one of CO_2, NO_x, SO_2, SO_3, NH_3, CO, HCN, and hydrogen halide compounds, comprising:

providing a sensitive layer between a radiation source and a detector, the sensitive layer containing at least one oligomer or polymer having at least one side chain, the side chain having at least one basic or acidic functional group; and

detecting at least one of CO_2, NO_x, SO_2, SO_3, NH_3, CO, HCN, and a hydrogen halide compound using the sensitive layer and the detector.